

Lesson 4: iPad and Universal Apps

INTRODUCTION

The first iPad was released on April 3, 2010. The iPad has a multi-touch screen and includes a virtual keyboard, a software component that allows a user to enter characters. As more iOS devices become available, developers need to build apps intended to run on all devices.

LESSON OBJECTIVES

By the end of this lesson, the student will be able to:

1. Identify the hardware differences between versions of iPad.
2. Identify UI elements available when creating iPad applications including split view controller, modal and popups.
3. Differentiate universal app, iPad app, and iPhone app design differences.
4. Explain the steps in setting up a universal app.
5. Identify advantages of creating a universal app.
6. Identify disadvantages of creating a universal app.
7. Explain the file naming conventions used to recognize retina versus non-retina images.
8. Identify the file type preferred by iOS devices for image and icon files.

LEARNING SEQUENCE

| Required Reading | Read the following: <ul style="list-style-type: none">• Lesson 4: iPad and Universal Apps |
|------------------|--|
| Resources | Review the following: <ul style="list-style-type: none">• iPad models• iPad model comparison• iOS Programming Tutorial: Creating a Universal App• Better code: Develop universal Apps for iOS devices |
| Assignments | Complete the following: <ol style="list-style-type: none">1. Practice Exercise—Web Lookup2. Quiz 4 |

KEY TERMS

As you read your lesson, pay close attention to the [key terms and phrases](#) listed throughout the lesson. These terms and concepts are important to your understanding of the information provided in the lesson.

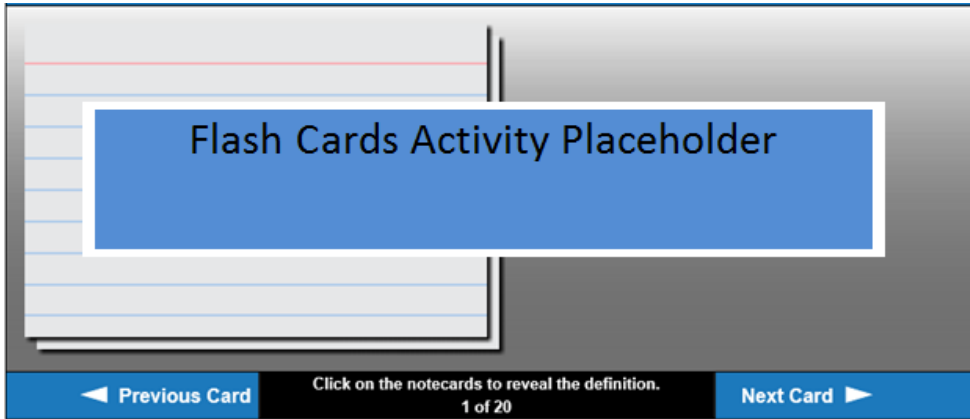


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Karina Whetstone 2/17/2015 2:59 PM

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INSTRUCTION

The iPad

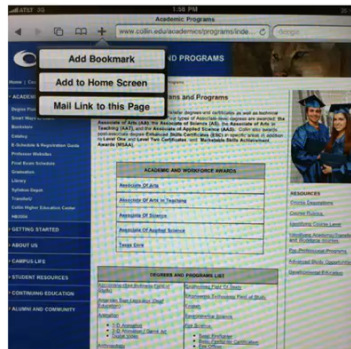
The iPad has multiple models with storage that ranges from 16 GB to 128 GB. Features include: retina display, anti-reflective coating, different resolutions, fingerprint-resistant coating, and an LED-backlit multi-touch display. The latest [iPad models](#) and features can be viewed on the Apple website.

For a historical perspective on the iPad, see the [model comparison](#) on Wikipedia.

User Interfaces

There are several user interfaces which are only available for the iPad.

Popovers display views as a popup. The toolbar may be added to the top or the bottom. A popover may be used instead of an **action sheet**, which displays a set of choices related to a task that the user initiates. Close a popup by tapping outside the popup—there is no Cancel button. The default size is 320 pixels wide by 1100 pixels high.



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Figure 1: A popup displays when the plus icon is selected

Figure 1 shows a popup added to a toolbar located at the top of the app.

A split view controller contains two panes: a master pane and a detail pane.

When a choice is selected in the master pane, the result is displayed in the detail pane. The Email program, as shown in Figure 2, provides an example of a split view controller.



Figure 2: An example of a split view controller is the email program

The master pane is a fixed 320 pixels wide. In portrait mode, a button automatically gets added at the top for the master pane.

On an iPad, there are several **modal view** styles available based on the current task and the visual style of the app that include:

- Full screen: covers the whole screen
- Page sheet: fixes the width at 768 pixels and allows the sheet height be the current height of the screen
- Form sheet: has fixed dimensions of 540 x 630 pixels and is centered on the screen
- Current context: uses the same size as the parent view

Deciding on Devices to Support

The developer must decide if an app is going to be developed for both iPhone and iPad. If developing for both, one of two approaches can be taken:

1. Create two different apps—one for the iPhone and one for the iPad.
2. Create a universal app.

A **universal app** can be used on both the iPhone and the iPad. There are actually two different interface views in the one app, so the screens of both devices can be accommodated.



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If the developer chooses to create two separate apps, he or she can optimize the design features for each device. This also means that each version will be paid for separately in the App Store. Although this may sound appealing, there is a downside. The developer must now maintain and update both versions.

Going Universal

If the decision is made to go with a universal app, the developer will need different storyboards, images, and possibly different code to handle both the iPhone and iPad. The developer must be familiar with the different hardware and sensor features on each device type.

There are two different ways of handling the coding.

1. Share a viewController: involves less coding and setup (see sample code below)
2. Different viewControllers: allows customization for each viewController

The following sample code can be used to share the same viewController:

```
If ([[UIDevice currentDevice] userInterfaceIdiom]
== UIUserInterfaceIdiomPhone)
{
    // write iPhone specific code here
}
else
{
    //write iPad specific code here
}
```

Read the [iOS Programming Tutorial: Creating a Universal App](#) and [Better code: Develop universal Apps for iOS devices](#) to see other examples.

App Icons

When creating app icon files, the icon sizes need to be exact.

- For the iPhone, icons are 60 by 60 pixels (120 by 120 pixels for retina).
- For the iPad, icons are 76 by 76 pixels (152 by 152 pixels for retina).

Retina displays have a higher pixel density. In addition, the file type must be a .png.

When naming the file, use **@2x** in the file name to automatically have the correct version of the file used for retina displays. This eliminates the need to detect whether the device is retina or not in the code.

For example, an image file, image.png, will need to be uploaded for non-retina displays and a second file, image@2x.png, will be uploaded for retina displays. In the code, the developer will reference the image.png file, but the image@2x.png will display instead automatically, if the device has a retina display.

For the App Store, create a larger version of the app icon in two sizes: 512 x 512 pixels and 1024 x 1024 pixels.



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Modifying an Existing Project

If a developer already has an iPhone project that he or she would like to make available for the iPad, a target can be added to the project by performing the following steps:

1. Open the project file in Xcode.
2. Select the top project group.
3. On right list of targets, right-click the target and DUPLICATE
4. Select **Duplicate iPhone Target**.

Trying to incorporate iPhone capability in a project that was iPad only is a little more difficult because the iPhone interface files have to be recreated.

SUMMARY

This lesson discussed several of the iPad-only design considerations. A developer needs to decide how a potential app will be designed based on the various iOS devices in the marketplace. Creating a Universal project to handle multiple devices with one app is one solution that can be used.

ASSIGNMENTS

1. Practice Exercise—Web Lookup
2. Quiz 4



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